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1. BASIC TEXTILE WET PROCESSING TERMS

ABSORBENCY: The ability of one material to take up another material.

BLEACHING: It is a process to remove the natural and artificial impurities in fabrics to obtain clear white for finished fabric or in preparation for dyeing and finishing.

CHEESE: A cylindrical package of yarn wound on a flangeless tube.

DENSITY: The mass per unit volume

DYEING: It is a process of coloring fibers, yarns, or fabrics with either natural or synthetic dyes.

DYES: Substances that add color to textiles.

EFFLUENT: Waste water released after pretreatment, dyeing & finishing of Textile.

FINISHING: It includes various operations such as heat-setting, napping, embossing, pressing, calendaring, and the application of chemicals that change the character of the fabric.

LUSTER: The quality of shining with reflected light on textile material.

pH: Value indicating the acidity or alkalinity of a material.

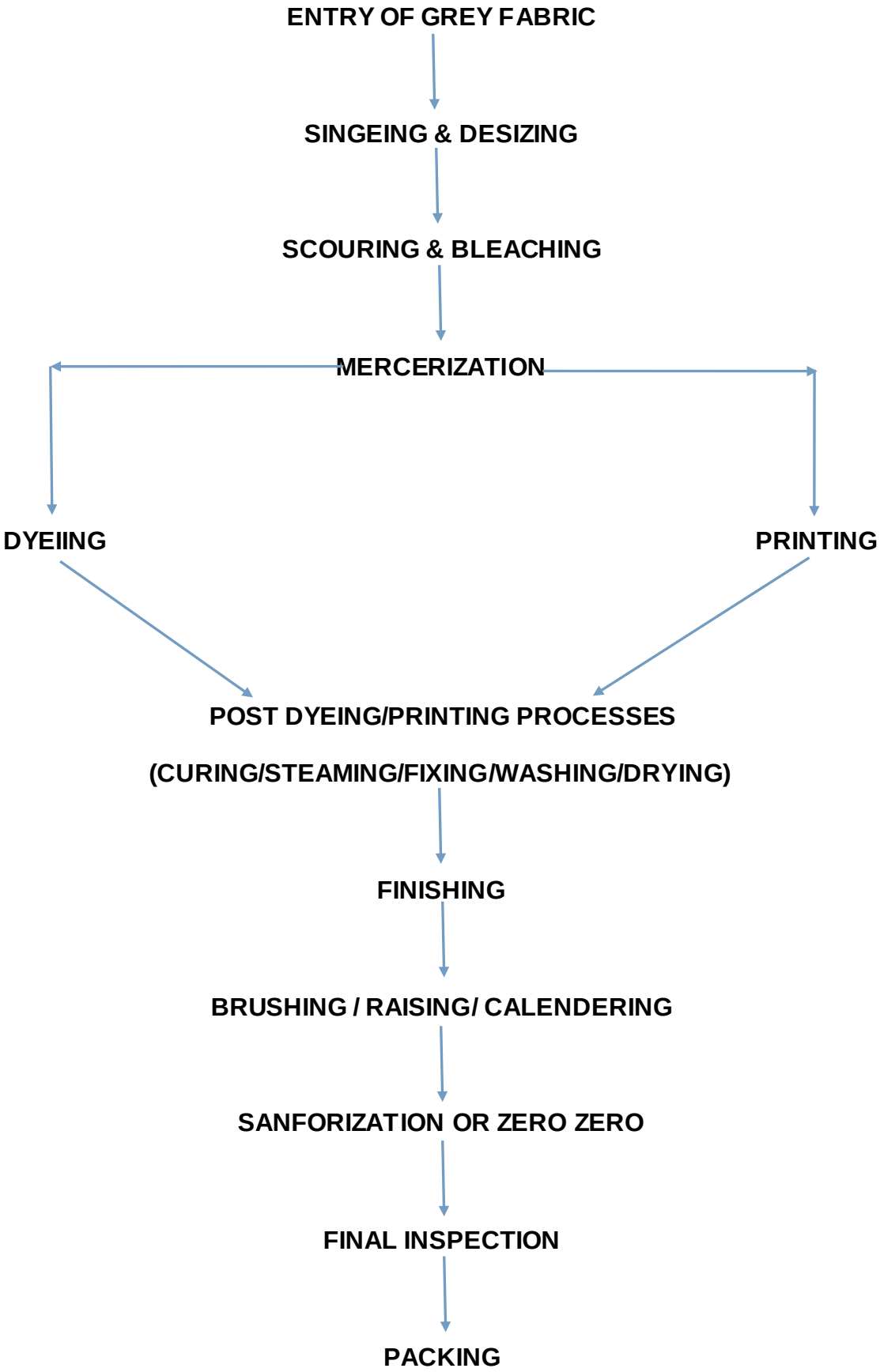
PIGMENT: An insoluble, finely divided substance, used to color fibers, yarns, or fabrics.

SOFTENER: A product designed to impart soft mellowness to the fabric.

YARN: A generic term for a continuous strand of textile fibers, filaments, or material in a form suitable for knitting, weaving, or otherwise intertwining to form a textile fabric.

YARN COUNT: Yarn count is the numerical expression of yarn, which defines its fineness or coarseness. (Linear density).

2. SEQUENCE OF OPERATIONS IN WET PROCESSING



3. Brief note on Desizing:

Desizing:

Desizing is a process of removing the size material from the fabric, which is applied in warp yarn before weaving. The size material is removed to facilitate the penetration of dyes and chemicals in the subsequent wet processing operations.

Methods of desizing:

Desizing of cotton fabric can be accomplished by physical, chemical or combination of physical and chemical mechanism, namely rot steeping, acid steeping, treatment with enzyme and oxidizing agents.

Rot steeping

In this method grey cotton fabric is steeped in water in suitable box at a temperature of about 30-40° c for about 24 hrs. During the storage micro-organisms develop and the starch becomes a soluble compound.

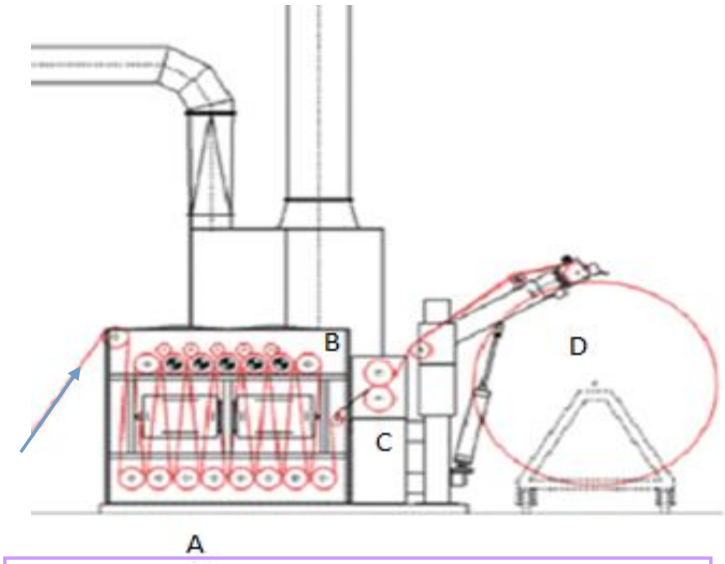
Acid desizing:

In this method cotton fabric is treated with dilute sulfuric acid with a concentration of 5-10 g/l at a temperature of about 40°c for 3-4 hrs. Dilute acid converts starch into water soluble compound and removes it.

Enzymatic desizing:

In enzymatic desizing the grey fabric is first padded with the desizing mixture containing enzyme - 0.5-2% and wetting agent at 60-70°. During this period the Enzymes reacts with starches and make them soluble.

Passage of fabric in desizing machine:



A- desize chamber B - Rollers C- Squeezing mangle D- outlet batch

Sequence of desizing operation:

Singeing → Desizing → Rotation station(6-12 hrs) → Washing

4. Details of desizing machine:

Inlet feeding unit:To feed the fabric into the machine It has guide bars ensuring smooth passage of fabric and one compensate (fabric tensioner) to set necessary fabric tension.

Selvedge guide: To align fabric centrally and it helps in passing the fabric without folds into the machine.

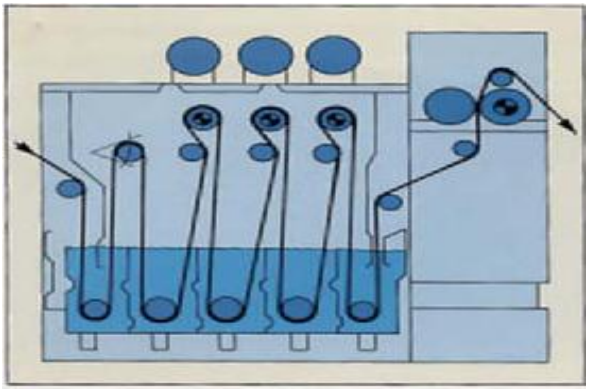
Desizing chamber: The main function of this chamber is to wet the fabric by using series of rollers, the fabric is immersed into the desizing chemicals and thus desizes the fabric.

Chemical dosing system: It doses the appropriate quantity of required chemicals and water into the chemical mixing tank. The chemicals get mixed in the mixing tank and then dosed into the desizing chamber.

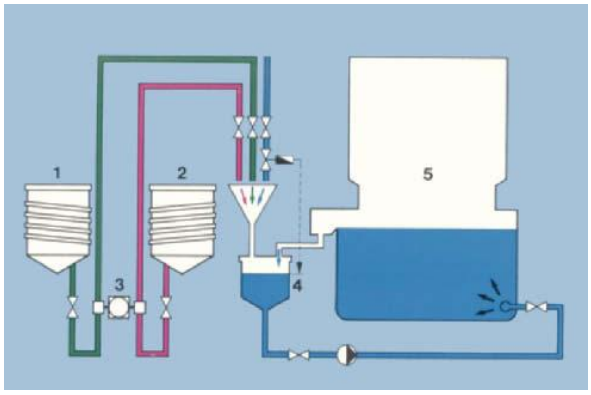
Squeezing mangle: To squeeze out extra chemical solution from fabric, it has two rubber coated rollers which are pressed together to squeeze out chemical solution and passes it back into the desizing chamber.

Batching unit: Important function of batching unit is to wind the fabric on batch. The fabric is guided over the driven roller and is then wound onto batch.

Rotating station: To have uniform distribution of desizing chemicals throughout the batch the fabric after batching, is covered completely with polythene sheet and is then kept in rotating station for rotation for uniform application of desizing chemicals on the batch.



Desizing chamber



dosing of desize chemicals

Batching unit

Selvedge guide

Squeezing mangle

Chemical Dosing system

5. Operating desizing machine:

Stitching of fabric to be desized

Feeding of fabric without crease

Dosing of chemical into desize tank

Padding

Indicator of chemical/ temperature **Ensuring proper batching (No defects)**

- Understand and follow the instruction from lot card and programme book.
- Switch ON main power and open steam, compressed air and water valve.
- Transport the grey fabric to be run, to the inlet feeding unit of desizing machine using hydraulic hand puller or electric truck from the grey batching section.
- Prepare desizing recipe with the guidance of the supervisor.
- Adjust machine parts according to the following parameters as per supervisor's instructions,
- **Temperature of Desize chamber:** It is measured in degree Celsius. Set the temperature as instructed to get correct desizing.
- **Chemical dosing:** The dosing of chemicals should be optimum. Less quantity of chemicals leads to poor size removal while excess quantity leads to wastage of chemicals.
- **pH of the desizing chamber**: Determine the pH value of desize mix in the chamber using pH meter or pH paper. Since all the enzymes work at a particular pH, this value should be in a specified range.
- **Pick-up** – It is the amount of chemicals taken by fabric and is expressed in percentage (%) Low pick-up leads to less chemicals on fabric thus causing

improper size removal and High pick-up leads to more consumption of chemicals than required i.e. wastage of chemicals.

- ❖ All the above parameters to be continuously monitored by the operator while the machine is running.
- ❖ Verify all the above set parameters in panel board While machine is working
- ❖ Verify that the chemical dosing is taking place properly.
- ❖ Ensure that the fabric is evenly & uniformly dried before desizing.
- ❖ Continuously inspect the feed fabric and outlet fabric with the help of other operator.

Cleaning in desizing machine:

- ❖ Remove regularly accumulated dust and dirt from the machine.
- ❖ Clean all the rollers dry fabric at periodic intervals
- ❖ Clean properly Main chemical tank, preparation tank and other pipelines.
- ❖ Clean the Padding mangle with water in every shift.
- ❖ Collect all the waste and store them in designated place.

6. INSTRUCTIONS DURING SHIFT CHANGE OVER:

Taking charge of duties while starting of shift:

- ❖ Come at least 10 - 15 minutes earlier to the work place.
- ❖ Meet the previous shift operator and discuss regarding the issues faced by them with respect to the quality or production or spare or safety or any other specific instructions etc.
- ❖ Understand the fabric being processed & process running on the machine.
- ❖ Ensure technical details are mentioned on the job card & displayed in the machine.

- Check the next batch to be processed is ready near the machine.
- Check the cleanliness of machines & other work areas.
- Question the previous shift operator for any deviation in the above and bring the same to the knowledge of the shift superior.

Handing over charge at the end of shift:

- Properly hand over the shift to the incoming operator.
- Provide the details regarding fabric quality & the process running on the machine.
- Provide all relevant information regarding the stoppages or breakdown in the machine, any damage to the material or machine.
- Ensure the next lot to be processed is ready near the machine
- Get clearance from the incoming counterpart before leaving the work spot.
- Report to the shift supervisor in case the next shift operator doesn't report for the shift.
- Report to the shift supervisor about the quality / production / safety issues/ any other issues faced in the shift and leave the department only after getting concurrence for the same from supervisor.
- Collect the wastes from waste bags, weigh them & transport to storage area.

7. Importance of Health and Safety:

- Use and maintain personal protective equipment such as Hand Gloves, Gum Boots, head cap etc., as specified.
- Never handle chemicals with bare hands
- Report any service malfunctions in the machine, that cannot be rectified to the supervisor.
- Store materials and equipment at their designated places.

- ❖ Minimize health and safety risks to self and others due to own actions.
- ❖ Monitor the workplace and work processes for potential risks.
- ❖ Do not carry any metallic parts during machine running as there are chances of fire and damage to machine parts.
- ❖ Take action based on instructions in the event of fire, emergencies or accidents, and participate in mock drills/ evacuation procedures organized at the workplace as per the organization procedures.